Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-53. (Cancelled)

54. (Currently Amended) A projection optical system capable of forming a reduced image of an object onto an exposure field, comprising:

a plurality of lenses arranged along an optical axis of the projection optical system;

an aperture stop arranged among ~~said~~ the plurality of lenses;

wherein the plurality of lenses comprises a first negative group of lenses, a first positive group of lenses arranged between the first negative group of lenses and the exposure field, a second negative group of lenses arranged between the first positive group of lenses and the exposure field, and a second positive group of lenses arranged between the second negative group of lenses and the exposure field,

the projection optical system further comprising:

a first aspherical surface arranged between the aperture stop and the exposure field;

a second aspherical surface arranged between the first positive group of lenses and the aperture stop; and

a third aspherical surface arranged between the object and the second negative group of lenses,

wherein ~~said~~ the plurality of lenses are arranged and formed so as to perform an imagewise maximum numerical aperture of at least 0.8 through the exposure field.

55. (Currently Amended) A projection optical system according to claim 54, ~~wherein said plurality of lenses includes an~~further comprising:

a first aspherical lens with the first aspherical ~~lens~~ surface;

a second aspherical lens with the second aspherical surface; and

a third aspherical lens with the third aspherical surface.

56. (Previously Added) A projection optical system according to claim 55, wherein said exposure field has a dimension of at least 25mm.

57. (Currently Amended) A projection optical system according to claim 55, ~~wherein said plurality of lenses include a first positive group of lenses, a second positive group of lenses, and a negative group of lenses~~further comprising a lens arranged between ~~said first group of lenses and said second group of lenses~~the second aspherical lens and the third aspherical lens.

58. (Currently Amended) A projection optical system according to claim ~~57~~55, wherein ~~said~~ the third aspherical lens is arranged in the first ~~positive group of lenses includes a~~ negative ~~lens, and said second positive~~ group of lenses ~~includes a negative lens~~.

59. (Currently Amended) A projection optical system according to claim 57, wherein ~~said~~ the aperture stop is arranged in ~~said~~ the second positive group of lenses.

60. (Currently Amended) A projection optical system according to claim 57, wherein the plurality of lenses further includes an additional ~~negative group of lenses arranged between the first positive group of lenses and the second positive group of lenses, and a third~~ positive group of lenses arranged ~~in an optical path~~ between the object and the first negative group of lenses ~~and the additional negative group of lenses~~.

61. (Currently Amended) A projection optical system according to claim ~~55~~60, wherein the ~~number~~ additional positive group of lenses includes a fourth aspherical surface~~objectwise of said aperture stop is at least six, and the number of lenses imagewise of said aperture stop is at least four~~.

62. (Currently Amended) A projection optical system according to claim ~~54~~55, ~~wherein said plurality of lenses includes at least three aspherical~~further comprising a lens ~~surfaces~~arranged between the first aspherical lens and the exposure field.

63. (Currently Amended) A projection optical system according to claim 54, wherein the aspherical surfaces include ~~said plurality of lenses including~~ an aspherical lens surface with refractive power at a paraxial region and refractive power at a periphery, and wherein ~~said~~ the refractive power at ~~said~~ the periphery is weaker than ~~said~~ the refractive power at said paraxial region.

64. (Currently Amended) A projection optical system according to claim 63, wherein the aspherical surfaces ~~said plurality of lenses~~ further ~~includes~~ include an another aspherical lens surface with refractive power at a paraxial region and refractive power at a periphery, and wherein said refractive power at ~~said~~ the periphery is stronger than said refractive power at ~~said~~ the paraxial region.

65. (Currently Amended) A projection optical system according to claim 54, wherein the aspherical surfaces include ~~said plurality of lenses includes~~ an aspherical lens surface with refractive power at a paraxial region and refractive power at a periphery, and wherein ~~said~~ the refractive power at ~~said~~ the periphery is stronger than said refractive power at ~~said~~ the paraxial region.

66. (Currently Amended) A projection optical system according to claim 54, wherein the aspherical surfaces include an ~~said~~ aspherical lens surface ~~has~~ having a refractive power at a paraxial region and a refractive power at a periphery, and wherein ~~said~~ the refractive power at ~~said~~ the periphery returns in the direction of said refractive power in ~~said~~ the paraxial region.

67.-109. (Canceled)

110. (Previously Added) A scanning projection exposure apparatus for projecting an image of a pattern on a reticle onto a photosensitive workpiece, comprising:

a first stage that is movable along a scanning direction and supports the reticle at a first surface;

an illuminating optical system adjacent the first stage and arranged so as to illuminate the reticle with a light;

a second stage that is movable along at least the scanning direction and supports the photosensitive workpiece at a second surface; and

a projection optical system according to claim 54 arranged in an optical path between the first surface and the second surface.

111. (Previously Added) A method of patterning a photosensitive workpiece with a pattern present on a reticle, comprising the steps of:

illuminating the reticle;

projecting the light from the reticle with a projection optical system according to claim 54; and

exposing the photosensitive workpiece over the exposure field.

112. (New) A projection optical system according to claim 54, wherein the first aspherical surface is arranged in the second positive group of lenses.

113. (New) A projection optical system according to claim 112, wherein the second aspherical surface is arranged in the second negative group of lenses.

114. (New) A projection optical system according to claim 112, wherein the third aspherical surface is arranged in the first negative group of lenses.

115. (New) A projection optical system according to claim 112, wherein the third aspherical surface is arranged in the first positive group of lenses.

116. (New) A projection optical system according to claim 54, wherein the second aspherical surface is arranged between the first positive group of lenses and the aperture stop.

117. (New) A projection optical system according to claim 54, wherein the third aspherical surface is arranged between the object and the first positive group of lenses.

118. (New) A projection optical system according to claim 117, wherein the second aspherical surface is arranged between the first positive group of lenses and the aperture stop.

119. (New) A projection optical system capable of forming a reduced image of an object onto an exposure field, comprising:

a plurality of lenses arranged along an optical axis of the projection optical system;

an aperture stop arranged among the plurality of lenses;

wherein the plurality of lenses comprises:

a first aspherical lens with a first aspherical surface arranged between the object and the aperture stop;

a second aspherical lens with a second aspherical surface arranged between the object and the aperture stop;

a third aspherical lens with a third aspherical surface arranged between the object and the aperture stop;

a first lens arranged between the first aspherical lens and the second aspherical lens; and

a second lens arranged between the second aspherical lens and the third aspherical lens,

wherein the plurality of lenses are arranged and formed so as to perform an imagewise maximum numerical aperture of at least 0.8 through the exposure field.

120. (New) A projection optical system according to claim 119, further comprising a fourth aspherical lens with a fourth aspherical surface arranged between the aperture stop and the exposure field.

121. (New) A projection optical system according to claim 119, wherein the plurality of lenses comprises:

a first negative group of lenses;

a first positive group of lenses arranged between the first negative group of lenses and the exposure field;

a second negative group of lenses arranged between the first positive group of lenses and the exposure field;

a second positive group of lenses arranged between the second negative group of lenses and the exposure field; and

an additional group of lenses arranged between the object and the first negative group of lenses,

wherein the first aspherical lens is arranged between the object and the first negative group of lenses.

122. (New) A projection optical system according to claim 119, wherein the plurality of lenses comprises:

a first negative group of lenses;

a first positive group of lenses arranged between the first negative group of lenses and the exposure field;

a second negative group of lenses arranged between the first positive group of lenses and the exposure field;

a second positive group of lenses arranged between the second negative group of lenses and the exposure field; and

an additional group of lenses arranged between the object and the first negative group of lenses,

wherein the second aspherical lens is arranged between the first positive group of lenses and the second positive group of lenses.

123. (New) A projection optical system according to claim 119, wherein the plurality of lenses comprises:

a first negative group of lenses;

a first positive group of lenses arranged between the first negative group of lenses and the exposure field;

a second negative group of lenses arranged between the first positive group of lenses and the exposure field;

a second positive group of lenses arranged between the second negative group of lenses and the exposure field; and

an additional group of lenses arranged between the object and the first negative group of lenses,

wherein the second aspherical lens is arranged between the additional group of lenses and the first positive group of lenses.

124. (New) A scanning projection exposure apparatus for projecting an image of a pattern on a mask onto a photosensitive workpiece, comprising:

a first stage that is movable along a scanning direction and supports the mask at a first surface;

an illuminating optical system adjacent the first stage and arranged so as to illuminate the mask with a light;

a second stage that is movable along at least the scanning direction and supports the photosensitive workpiece at a second surface; and

a projection optical system according to claim 119 arranged in an optical path between the first surface and the second surface.

125. (New) A method of patterning a photosensitive workpiece with a pattern present on a mask, comprising the steps of:

illuminating the mask;

projecting a light from the mask with a projection optical system according to claim 119; and

exposing the photosensitive workpiece over the exposure field.